openreach

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Suppliers' Information Note

For The Openreach Network

Protocol Implementation Conformance Statements (PICS) for ISDN 30e: Primary Rate Access - Layer 1

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1. Introduction

This document states the capabilities and options of the DSS1 Layer 1 protocol for the primary rate access interface which has been implemented in the ISDN 30e network.

The ETSI protocol specification used as a basis for this PICS proforma is ETS 300 011-1, Edition 2, March 1998.

The ETSI PICS proforma used as a basis for this PICS is ETS 300 011-3, Edition 2, March 1998

Openreach will withdraw the ISDN30e Primary Rate Access service by end of January 2027 in line with the closure of the BT UK PSTN.

2. References

1	ETS 300 (1998)	011-1	Integrated Services Digital Network (ISDN); Primary rate User-Network Interface (UNI); Part 1: Layer 1 specification
2	ETS 300 (1998)	011-3	Integrated Services Digital Network (ISDN); Primary rate User-Network Interface (UNI); Part 3: Implementation Conformance Statement (ICS) and Implementation eXtra Information for Testing (IXIT) proforma specification for interface IA and IB

For further information or copies of referenced sources, please see document sources at https://www.openreach.co.uk/orpg/home/helpandsupport/sins/sins.do

3. Protocol Implemenation Conformance Statement (PICS)

Using the relevant standard (see ref. 2), the PICS is given below. The section and table numbering as used in the ETSI standard has been maintained. Only those parts of the standard relevant to the network implementation are given. For guidance on the abbreviations and meaning of the completed PICS tables, see SIN 369, Part A.

Unless stated otherwise, the standard referred to in the **reference** column is the ETS given in reference 1. For glossary of terms used, see the referenced standards [1, 2].

A.6 ICS proforma for interface I_B (NT)

Table A.9: Optional capabilities for interface I_B

Item No.	Item	Reference	Status	Support
1.1	Is the network termination of type 1 (NT1).	3.1	o.901	Y
1.2	Is the network termination of type 2 (NT2).	3.1	o.901	N
2.1	Is the NT using interface connector according to ISO/IEC 10173 [4].	4.4	o.902	Y
2.2	Is the NT hardwired to TE.	4.4	o.902	N
3	Does the NT use bit 2 frames not containing frame alignment signal to detect loss of frame alignment.	6.8.1.1	o	Y
4	Does the digital transmission link process CRC 4.	7.2.2.1	c901	Y
5	Is the NT powered via the interface.	9.1	o	N
6	Does the PTNX act as a timing master.	5.8	c902	N/A
o.901: It is mandatory to support at least one of these items. o.902: It is mandatory to support at least one of these items. c901: IF A.9/1.1 THEN m ELSE o c902: IF A.9/1.2 THEN o ELSE x				

Table A.10: Timers for interface I_B

Item	Item	Reference	Status	Support	Range/value	
No.					Allowed	Support
1	Timer for recognition of the persistent receipt of A bit set to 1 (RAI) and E bit set to 0 (CRC4 error).	6.1	m		10 ms - 50 ms	10 ms - 50 ms
2	Timer for recognition of loss of signal.	6.1	m		> 1 ms	> 1 ms
3	The persistent receipt of signals other than normal frames verified by timer T1.	7.3.3.3	m		100 ms - 1 000 ms	100 ms - 1 500 ms
4	The persistent receipt of normal frames verified by timer T2.	7.3.3.3	m		10 ms - 100 ms	10 ms - 1500 ms

Table A.11: Functional characteristics for interface I_B

Item No.	Item	Reference	Status	Support
1	Only point-to-point configuration.	4.1	m	Y
2	Does the IUT provide a point where a shield can be connected to.	4.3	m	Y
3	Layer 1 functions: B-channel or H0-channel or H1-channel, D-channel. Bit timing, Octet timing, Frame alignment, Power feeding, maintenance and CRC procedure.	5.1	m	Y
4	Two interchange circuits for transmission of digital signals.	5.2	m	Y
5	Interface is permanent active.	5.3	m	Y
6	Definitions of primitives: - PH-AI Activate indication; - PH-DI Deactivate indication; - MPH-AI Management activate indication; - MPH-DI Management deactivate indication.	5.4	m	Y
7	Eight bits per time slot.	5.5.1	m	Y
8	32 time slots per frame.	5.5.2	m	Y
9	Assignments of bits in time slot 0, frame alignment signal.	5.5.3	m	Y
10	Assignments of bits in time slot 0, CRC4 multiframe alignment signal , CRC4-bits, CRC4 error bits.	5.5.4	m	Y
11	Allocation of bit 1 to 8 of the frame for a complete CRC-4 multiframe.	5.5.4.1	m	Y
12	CRC-4 multiframe structure.	5.5.4.2	m	Y
13	Use of bit 1 in CRC-4 multiframe.	5.5.4.3	m	Y
14	Multiplication/division process.	5.5.5.1	m	Y
15	Encoding procedure.	5.5.5.2	m	Y
16	Decoding procedure.	5.5.5.3	m	Y
17	Independent transmission provided by the time slots.	5.6	m	Y
18	Code is HDB3.	5.7	m	Y
19	The NT derives its timing from the network clock.	5.8	m	Y

Table A.12: Interface procedures for interface I_B

Item No.	Item	Reference	Status	Support
1	Definition of signals between the network and user side: - Normal operational frames; - RAI remote alarm indication; - LOS no received signal; - AIS alarm indication signal; - CRC error information.	6.1	m	Y
2	Definitions of states at network side: - G0 state: Loss of NT power; - G1 state: Operational state; - G2 state: Transmitting RAI; - G3 state: Loss timing at network side; - G4 state: Transmitting AIS; - G5 state: Transmitting RAI and continuous CRC error-report; - G6 state: Power on state.	6.2	m	Y
3	States at user sides:	6.3	n/a	
4	Operational functions as defined in state tables for network side.	6.4 and 6.5/table 6	m	Y
5	Time slot 16 is assigned to the D-channel.	6.6	m	Y
6	Assignment of channels (B or H0 or H1).	6.6	m	Y
7	HDLC flags to be transmitted when layer 2 has no frames to send.	6.7	m	Y
8	Loss of frame alignment:	6.8.1.1	m	Y
9	Strategy for frame alignment recovery:	6.8.1.2	m	Y
10	CRC multiframe alignment: - detection of two valid CRC multiframe alignment signal within 8 ms.	6.8.2	m	Y
11	CRC bit monitoring.	6.8.3	m	Y
12	Monitoring procedure.	6.8.3.1	m	Y
13	Monitoring for false frame alignment: - Detection of 915 or more errored CRC blocks out of 1 000 indicates false frame alignment.	6.8.3.2	m	Y

Table A.13: Maintenance of the interface for interface I_B

Item No.	Item	Reference	Status	Support
1	Definition of maintenance signals - RAI, indicates loss of layer 1 capability at the network side, RAI is transmitted in the opposite direction of the error. - CRC, error report: E bit.	7.1	m	Y
2	Use of CRC-4.	7.2	n/a	
3	General requirements: - detect anomalies; - detect defects; - take action when anomalies or/and defects are detected; - detect received defect indication signals.	7.3.1	m	Y
4	Maintenance function on the user side.	7.3.2	n/a	
5	Maintenance functions on the network side, anomalies and defects detection: - loss of power; - loss of incoming signal; - loss of frame alignment; - CRC error.	7.3.3.1	m	Y
6	Detection of defect and error indication signals on the network side: - RAI; - CRC error report.	7.3.3.2	m	Y
7	Consequent actions on the network side (see table 21 concerning the timers).	7.3.2.3	m	Y

Table A.14: Electrical characteristics for interface I_B

Item No.	Item	Reference	Status	Support
1	Bit rate is 2 048 kbit/s ± 50 ppm when transmitting AIS.	5.8	m	Y
2	The NT synchronizes its timing to the network clock.	5.8	m	Y
3	Is the interface balanced with an impedance of 120 ohm.	8.1	m	Y
4	Is the nominal bit rat 2 048 kbit/s.	8.2.1	m	Y
5	Waveform shape including nominal peak voltage: 3 V, peak voltage of a space: 0 ± 0,3 V, nominal pulse width: 244 ns. Ratio of the amplitudes of positive and negative pulses at the centre of pulse interval: 0,95 to 1,05. Ratio of the widths of positive and negative pulses at the nominal half amplitude: 0,95 to 1,05.	8.2.2	m	Y
6	Return loss at the output port.	8.2.3	o	Y
7	Return loss at the input port.	8.3.2	m	Y
8	Is the receiver able to detect input signal with 6 dB attenuation without errors.	8.3.1	m	Y
9	Input port immunity against reflections:.	8.3.3	m	Y
10	Tolerable longitudinal voltage:	8.2.4	m	Y
11	Impedance towards ground of the output port.	8.3.4	m	Y
12	Impedance towards ground ff the input port.	8.3.5	m	Y
13	NT1 input jitter tolerance: minimum tolerance to jitter and wander.	8.4.4.1	c1401	Y
14	NT input jitter tolerance: minimum tolerance to jitter and wander.	8.4.4.2	c1402	N/A
15	NT output jitter: - low - high cut-off = 20 Hz - 100 kHz: - maximum jitter = 1,1 UI; - low - high cut-off = 400 Hz - 100 kHz: - maximum jitter = 0,11 UI.	8.4.3.1	c1401	Y
16	Leased line output jitter:	8.4.3.2	n/a	
c1401: IF A.9/1.1 THEN m ELSE n/a c1402: IF A.9/1.2 THEN m ELSE n/a				

Table A.15: Power feeding for interface I_B

Item No.	Item	Reference	Status	Support
1	Provision of power to the NT via I_B.	9.1	c1501	N
2	Power consumption of the NT: - power £ 10 W.	9.2	c1501	Y
3	Voltage required by the NT: - -57 V £ U £ -20 V.	9.3	c1501	Y
4	Safety requirements: no damage of power sink with interchange of wires.	9.4	c1501	Y
c1501: IF (A.9/1.1 AND A.9/5) THEN m ELSE o				

4. History

Issue 1	November 2000	First Issue
Issue 1.1	July 2014	Change SINet site references from http://www.sinet.bt.com to http://www.btplc.com/sinet/
Issue 1.2	October 2020	Changes to branding, from BT to Openreach including changes to reflect new Openreach SIN site and Openreach SIN email address
Issue 1.2	October 2021	Annual Review – no changes required – issue remains unchanged.
Issue 1.2	October 2022	Annual Review – no changes required – issue remains unchanged.
Issue 1.3	December 2025	Withdrawal notification added to the introduction section.